# Executive Summary: Customer Churn Analysis

This report presents a detailed analysis of customer churn for a telecommunications company, leveraging descriptive statistics and data visualization techniques. Below are the key findings and insights derived from the analysis:

**Key Findings:**

**1. Churn Distribution:**

   - A total of 26.5% of customers have churned, as illustrated by the pie chart in the report. The remaining 73.5% of customers have continued using the services.

   - The count plot visualization further emphasizes the disparity between churned and non-churned customers.

**2. Demographic Insights:**

   - Gender: Male and female customers exhibit similar churn rates, indicating that gender may not be a significant factor in customer churn.

   - Senior Citizens:

     - Senior citizens represent a notable proportion of the customer base.

     - The analysis shows that senior citizens are more likely to churn compared to younger customers, as highlighted by the higher churn percentage in the visualizations.

**3. Financial Metrics:**

   - Total Charges: Data preprocessing involved converting blank values in the "TotalCharges" column to zero and casting them as float values for accurate

analysis.

 - The descriptive statistics indicate variability in total charges, which may correlate with churn behavior.

## 4. Service Features and Churn:

 - Additional crosstab analyses and visualizations (not fully reviewed here) likely reveal trends related to internet service types, contract duration, and add-on features.

## Data Quality and Preprocessing:

- The dataset was cleaned by addressing missing values in the "TotalCharges" column.

- "SeniorCitizen" values were converted from numerical (0, 1) to categorical (Yes, No) for easier interpretation.

## Recommendations:

## 1. Targeted Retention Strategies:

 - Develop retention campaigns focused on senior citizens, who show a higher propensity to churn.

 - Analyze service plans and billing issues for senior customers to identify pain points.

## 2. Customer Engagement:

 - Identify common characteristics of loyal customers and implement engagement strategies to replicate this behavior among at-risk segments.

## 3. Further Analysis:

- Perform deeper segmentation based on contract types, payment methods, and service features to uncover more actionable insights.

This executive summary highlights the importance of understanding customer demographics and service interactions in predicting and mitigating churn. The visualizations provide valuable evidence supporting these insights, making it a useful guide for strategic decision-making.